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| APPLICATION NO.                                                            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/752,256                                                                 | 01/06/2004  | Mathieu Gagne        | E30-029CON2         | 4025             |
| 34021                                                                      | 7590        | 06/27/2006           | EXAMINER            |                  |
| GEORGE A. HERBSTER<br>40 BEACH STREET<br>SUITE 303<br>MANCHESTER, MA 01944 |             |                      | RADTKE, MARK A      |                  |
|                                                                            |             | ART UNIT             | PAPER NUMBER        | 2165             |

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/752,256             | GAGNE ET AL.        |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Mark A. Radtke         | 2165                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 February 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 24-41 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 24-41 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 14 June 2004 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                         | Paper No(s)/Mail Date. _____ .                                              |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/14/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|                                                                                                                                              | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Remarks***

1. In response to communications filed on 14 February 2005, claim(s) 1-23 is/are cancelled and new claims 24-41 are added per Applicant's request. Therefore, claims 24-41 are presently pending in the application, of which, claims 24, 30 and 36 are presented in independent form.

### ***Claim Objections***

2. Claims 24, 29-30, 35-36 and 41 are objected to because of the following informalities:
- a. With regard to claims 24, 30 and 36, in lines 3-4 of the preamble, the phrase "link between the production and remote site" should be changed to --link between the production and remote sites-- to keep the language consistent with the next phrase, "first and second remote sites".
  - b. With regard to claims 24, 30 and 36, in line 12 of the preamble, a comma should be inserted after "a copy program" to separate "wherein" clauses. Applicant may wish to consider separating "wherein" clauses and method steps with semicolons to enhance the readability of the claims.

- c. With regard to claims 29, 35 and 41, in line 4, the phrase "issues a third and fourth commands" should be changed to --issues third and fourth commands--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.  
4. Claims 24, 30 and 36 recite the limitation "the second operating mode" in lines 5-6 of step C. There is insufficient antecedent basis for this limitation in the claim. For the purposes of examination, "the" will be read as "a".

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 24-41 are rejected under 35 U.S.C. 102(e) as being anticipated by LeCrone (U.S. Patent 6,529,944).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claim 24, LeCrone teaches in a data processing network having a production site (see figure 1, "Local"), first (see figure 1, "Campus") and second (see figure 1, "Extended") remote sites, a first communications link between the production and first remote site (see figure 1, "RA1") and a communication link between the first and second remote sites (see figure 1, "RA0") wherein the production site includes a magnetic disk storage device and a host adapted to update the data in the magnetic disk storage device, wherein the first remote site includes a first data store that mirrors the data in the magnetic disk storage device (see figure 1, elements R1B and R2 and see column 5, lines 38-43), a second data store that operates in a first mode to mirror the data on the first data store (see figure 1, elements R1BCV and R2 and see column 5, lines 43-49) and a copy program (see Abstract) and wherein the second remote site includes another data store, the data processing network being characterized by a

method for providing a backup of the data at the production site in each of the first and second remote sites (see Abstract) by:

A) establishing in the first remote site first and second tables for recording the occurrence of any change in the data in first data store and a third table for recording the need for any transfer of data from the second data store to the data store in the second remote site (see column 5, lines 38-49 and see column 9, line 66 – column 10, line 11),

B) initially establishing a state whereby the data in the data store in the second remote site corresponds to the data in the first data store at a point in time (see column 5, lines 38-43),

C) reestablishing the first operating mode for the second data store by combining information in the first and third tables to identify the changes made to the first data store (see column 6, line 54 – column 7, line 2) while the second data store was operating in the second operating mode (see column 6, line 57, where "second operating mode" is read on "not ready"),

D) differentially splitting, after synchronism is achieved between the first and second data stores, the second data store from the first data store by:

- i) copying the information in the second table to the third table,
- ii) clearing the second table, and
- iii) enabling the copy program to transfer the changed data in the second data store in the second remote site whereby the data store in the second remote site is

brought into synchronism with the data that existed in the first data store at the time of said differential splitting (see column 11, lines 26-30).

As to claims 25, 31 and 37, LeCrone teaches wherein said initial establishment includes:

i) establishing a first operating mode for the second data store whereby the second data store is brought into synchronism with the first data store (see column 6, line 54 – column 7, line 2),

ii) splitting to shift the second data store to a second operating mode after synchronism is achieved during which

a) the copy program copies data from the second data store to the data store in the second remote site in response to the information in the third table, and  
b) the first and second tables are updated each time the data in the first data store is altered (see column 7, lines 3-18).

As to claims 26, 32 and 38, LeCrone teaches wherein the host generates a first command to initiate said reestablishment step and a second command to initiate said differential splitting and wherein the method includes conveying the first and second commands to the first remote site on an iterative basis for effecting a cascading session during which the first and second operating modes are processed on a mutually exclusive basis (see column 7, lines 19-36 and column 10, lines 30-34).

As to claims 27, 33 and 39, LeCrone teaches wherein the magnetic disk storage devices have data storage tracks and wherein said copying occurs on a track-by-track basis, each of the first, second and third tables being formed as track tables with one bit position corresponding to one track (see column 7, lines 36-43).

As to claims 28, 34 and 40, LeCrone teaches wherein the first data store includes storage for diverse information about each track, said method including the step of copying the diverse information to the second table (see column 7, lines 44-50).

As to claims 29, 35 and 41, LeCrone teaches wherein the host generates a first command to initiate said establishment step (see column 5, line 38, "commands can be issued from host"), a second command to initiate said splitting operation (see column 5, lines 43-45) and then issues a third and fourth commands iteratively and on a mutually exclusive basis, the third command initiating the reestablishment step and the fourth command initiating differential splitting whereby the commands effect a cascading session (see Examiners comments regarding claims 24 and 26).

As to claim 30, LeCrone teaches a data processing network (see figure 1).

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 24 above.

As to claim 36, LeCrone teaches a data processing network including a program (see figure 1).

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 24 above.

#### ***Additional References***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of art with respect to data replication to two-tiered remote sites in general:

| Patent/Pub. No.   | Issued to            | Cited for teaching                                |
|-------------------|----------------------|---------------------------------------------------|
| US 5937414 A      | Souder; Benny et al. | Database replication among three sites            |
| US 20040073675 A1 | Honma, Shigeo et al. | Replication method resistant to network splitting |

#### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications should be directed to the examiner, Mark A. Radtke. The examiner's telephone number is (571)

Art Unit: 2165

272-7163, and the examiner can normally be reached between 9 AM and 5 PM,

Monday through Friday.

If attempts to contact the examiner are unsuccessful, the examiner's supervisor,  
Jeffrey Gaffin, can be reached at (571) 272-4146.

Any inquiry of a general nature or relating to the status of this application or  
proceeding should be directed to Customer Service at (800) 786-9199.

maxr

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21 June 2006



JEFFREY GAFFIN  
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